REMARKS

Status of the Application

In the Office Action mailed January 8, 2004, Claims 1-18 are pending in the application and these claims were rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the invention and were rejected under 35 U.S.C. § 102 as being anticipated in view of Koenraadt et al. (U.S. 2003/0092799) and in view of Larson et al. (U.S. 5,017,451).

In this response, Applicants have amended Claims 1, 8 and 10 to overcome these rejections. The remaining claims are either directly or indirectly dependent on these claims. Claims 3 and 13 have been cancelled.

35 U.S.C. § 112 Rejections

In Claim 1, step a., the term "elevated temperature" was objected to as not clearly defining the scope of the claim. To more clearly define the term, "below 200°C" was added to further define the range of temperatures used. Support for this amendment is in the specification on page 5, line 31.

In Claim 1, step c., "discharging the process mixture from the extruder" was used twice. The claim has been amended to remove the confusing statement.

Claim 8, the term "appropriate" was used and objected to and has been deleted.

In Claim 10, there was no antecedent for "molten" in Claim 1 on which Claim 10 depends. The term has been deleted from Claim 10.

The above amendments were made only to provide further clarification of the claims and not for reasons of patentability.

35 U.S.C. § 102 Rejections

Claims 1-3, 5-10 and 14-18 were rejected under 35 U.S.C. § 102 (e) as being anticipated by Koenraadt et al. (U.S. 2003/0092799). Koenraadt is directed to a process for preparing aqueous powder coating dispersions,

wherein Binders A and B are dispersed in an aqueous medium in an extruder. In contrast, applicants' process of this invention is directed to forming liquid coating compositions as set forth in the amended claims and does not disperse powder particles in an aqueous medium.

In Koenraadt, an aqueous dispersion of binder A is prepared in an extruder by the formation of small spherical-like particles. (see Koenraadt Par. 0033) Similarly, an aqueous dispersion of binder B can be prepared in another extruder and then both of the aqueous dispersions of binders A and B are mixed together under high shear conditions, e.g., in an extruder. Pigments can also be dispersed in the powder coating dispersion (See Koenraadt, Example 1).

Applicants' invention, as set forth in the amended claims, is directed to a process for preparing pigmented liquid coating compositions, wherein the pigments are dispersed in liquid (low solvent or solvent-free) binders in an extruder and additional binders and solvents can be added to the composition by mixing.

The primary difference between applicants' invention and Koenraadt is that Koenraadt forms a powder coating dispersion in an aqueous medium comprising small spherical-like particles which are solid at room temperature. The binder of the Koenraadt composition is in the form of particles that are solid at room temperature and stable in that form. This is not a "liquid coating composition" as is formed in applicants' invention. Instead, it is an aqueous powder dispersion wherein after application to a substrate, for example, by spray application, the resulting powder particles must, under elevated temperature conditions, melt together to form a uniform smooth pin hole free coating on the substrate. Also, the powder coating dispersion can be dried to form a solid powder coating composition. (See Koenraadt, par 0059). This would not be possible with applicants' liquid coating composition.

Applicants' process forms a liquid coating composition containing pigments of a specific particle size dispersed in a binder composition but does not contain a binder in the form of solid particles as does Koenraadt. It is impossible to obtain solid coating particles by drying the liquid coating

composition resulting from applicants' process as can be accomplished by drying the compositions formed by Koenraadt. The binder component of the composition formed according to applicants' process is a liquid at room temperature in contrast to Koenraadt wherein the binder is a solid powder particle at room temperature.

In regard to anticipation of applicants' novel process in view of Koenraadt, the compositions formed by applicants novel process is different from the compositions formed by the process taught by Koenraadt. Applicants' process requires that after the step of discharging the composition from the extruder, additional solvents are added before homogenizing the mixture to form a coating composition. Koenraadt does not require or suggest the addition of solvents and merely disperses binder particles in an aqueous medium. Hence, Koenraadt forms an aqueous dispersion of binder particles that can be formed into a powder upon drying whereas applicants form a solvent based binder solution wherein the binder remains a liquid polymer at room temperature conditions and certainly can not be formed into a powder by the removal of solvents as occurs with the Koenraadt composition. Koenraadt cannot be held to anticipate applicants' novel process since this necessary step required in applicants' process is not taught or even suggested by Koenraadt.

It would not be obvious to one skilled in the art to consider using the process of Koenraadt that forms aqueous powder coating dispersions to produce a liquid coating composition as is formed by applicants' process. The aim of Keonraadt is to obtain resin particles of a desired particle size (50-2000nm) in a liquid, in contrast, the aim of applicants' invention is to form a pigmented liquid coating composition containing properly ground pigments having a desired particle size so that liquid coatings can be obtained that have uniform desired color shades and a liquid binder composition that forms a film on curing.

Claims 1,2, 4, 9, 11-12, 14 and 16-17 were rejected under 35 U.S.C. § 102 (b) as being anticipated by Larson et al. (U.S. 5,017,451). In the Larson process, pigments are dispersed in a resin in an extruder and then a

dispersion is formed by introducing a liquid into the molten blend of the resin and pigment. Temperature is maintained to keep the blend in its molten state. The resulting dispersion is introduced into a high shear cooling apparatus wherein the resin solidifies forming a stable dispersion of particles of the blend in the liquid. This step combines the solidification of the resin particles and the grinding of these particles into the desired particles size. This is a process for forming resin particles in a liquid for the specific use as toner particles wherein pigments can be included in the composition.

In contrast to the Larson process, applicants require that after the step of discharging the composition from the extruder, solvents are added before homogenizing the mixture to form a coating composition. In the Larson process, the temperature in the extruder is maintained at a sufficiently high level so that the blend of resin and pigment remains in the molten state and the dispersion is formed afterwards in the high shear cooling apparatus wherein the molten blend solidifies forming a stable dispersion. This is in contrast to applicants' process wherein the temperature of the pigment/binder mixture is reduced to a temperature below 70°C before being discharged from the extruder as has been set forth in amended Claim 1. The binder is not in a molten state as required by Larson. The mixture is then homogenized by a high shear mixer but without solidifying the blend and forming resin particles. Support for the amendment to Claim 1 is on page 6, lines 27-30.

It would not be obvious to one skilled in the art to consider using the process of Larson that forms toner compositions to produce a liquid coating composition as is formed by applicants' process. Larson forms resin particles in an extruder by introducing liquid into a molten resin blend which as pointed out above is not done in applicants' process; in contrast, applicants' process forms a pigmented liquid coating composition containing properly ground pigments having a desired particle size by charging solvents into a non molten cooled mixture of binders and pigments and forms a dispersion by homogenizing the resultant mixture to form the liquid coating that has a uniform and a desired color shade and a liquid binder composition that forms a film on curing.

The other references made of record by the Examiner, U.S. 2003/01765564, U.S. 2002/0074681, U.S. 6,521,679 and U.S. 4,160,752 do not show or suggest applicants' novel process.

SUMMARY

In view of the foregoing amendments and remarks, Applicants believe the stated grounds of rejection have been properly traversed, accommodated, or rendered moot and that a complete response has been made to the Non-Final Office Action mailed January 8, 2004. Applicants believe that the application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited. If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to contact the undersigned at the number provided below. If any extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefore are hereby authorized to be charged to our Deposit Account No. 04-1928.

Respectfully submitted,

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